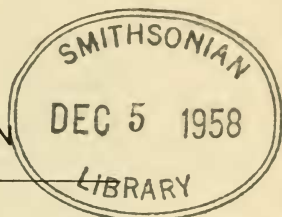


PROCEEDINGS  
OF THE  
BIOLOGICAL SOCIETY OF WASHINGTON



ON THE OCCURRENCE OF AGROTHRIPS IN  
ILLINOIS AND KANSAS, WITH A REVIEW  
OF THE NORTH AMERICAN SPECIES

(THYSANOPTERA: PHLAEOTHIRIPIDAE)

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Until recently thrips of the genus *Agrothrips* in North America had been found solely in the grasslands of western United States and Mexico. It came, therefore, as a considerable surprise when in 1956 a species of this genus was taken abundantly in pastures at Sheldon, Illinois. Because the closest known record of the species involved was from Colorado, I made particular effort during a collecting trip in 1957 through Iowa, Nebraska, Kansas, and Missouri to obtain further information on the distribution of *Agrothrips*. The Illinois species of *Agrothrips* was not encountered, but at Minneapolis, Kansas, additional specimens of a new species previously known to me from New Mexico were discovered.

In order to identify and to categorize these two species of *Agrothrips* it has been necessary to review the North American members of the genus.

Acknowledgment is gratefully made to Miss Kellie O'Neill of the U. S. National Museum for the loan of two paratypes of *Agrothrips omani* (Crawford).

**Agrothrips Jacot-Guillarmod**

*Agrothrips* Jacot-Guillarmod (1939:40). Type species by original designation.—*Agrothrips priesneri* Jacot-Guillarmod, Zululand.

Head much longer than wide, smooth, just slightly constricted behind the eyes. Eyes moderate in size, not prolonged posteriorly on the ventral surface more than on the dorsal surface. Ocelli present or absent. Post-ocular setae moderately developed, pointed to dilated. Antennae eight-segmented; segment III swollen near the base into a shelflike ring, fig. 2, sense cones difficult to observe; segments VI and VII with or without well defined pedicels; segment VIII broadly attached to segment VII. Mouth cone short, broadly rounded. Maxillary stylets slen-

der, when retracted forming a V within the head. Maxillary bridge broad.

Prothorax smooth, always with anterolateral and major posterior setae well developed, usually blunt to dilated; anteromarginal and midlateral setae minute except in the case of *tenebricosus* in which the midlateral setae are moderately long. Epimeral sutures complete. Praepeetal plates present. Meso- and metanotum fused or not fused. Metanotum usually smooth. Macropterous, brachypterous, or apterous. Fore wings when present narrowed beyond the middle, with accessory fringe cilia. Fore tarsi each with or without a small tooth.

Pelta usually in the form of a broad triangle, smooth. Abdominal tergite IX with major median posterior setae shorter than or longer than the tube. In males, abdominal sternite VIII with or without a differentiated glandular area; abdominal tergite IX with major lateral posterior setae reduced in size. Tube much shorter than head, not thickened or ridged.

*Agrothrips* is similar to *Haplothrips*, especially the subgenus *Karnyothrips*, differing principally by the form of antennal segment III. In *Agrothrips* antennal segment III has a thickened shelflike ring at the base just above the pedicel, fig. 2, whereas in *Karnyothrips* segment III gradually tapers to the pedicel.

As I have mentioned elsewhere (Stannard 1957), the name *Agrothrips* may or may not apply to the North American species. Even so this name can be used without bringing undue confusion to any system of classification because all the species, at least those from the Nearctic and the Ethiopian regions, are apparently closely related. Point by point the African type species, *priesneri*, is remarkably similar to some of our species except for a single feature, the fusion of the meso- and metanotum, a feature of degeneration that may be merely the result of extreme apterism.

The North American species of *Agrothrips* can be separated into two groups.

Group 1 can be characterized as having (a) the major median posterior setae on abdominal tergite IX longer than the tube, (b) a glandular area present on abdominal sternite VIII in the male, and (c) a slender form. This group includes *arenicola*, *tantillus* n. sp., and *palidus*. The African type species, *priesneri*, belongs nearest the aforementioned species on the basis of the predominantly yellow color, long setae on abdominal tergite IX, and by the slender appearance. The original description of *priesneri* does not indicate whether or not the male possesses a glandular area on abdominal sternite VIII.

Group 2 can be characterized by having (a) the major median posterior setae on abdominal tergite IX shorter than the tube, (b) by lacking a glandular area on abdominal sternite VIII in the male in those species in which the male is known, and (c) a more robust form than do species belonging to group 1. Group 2 includes *dimidiatus*, *omani*, and *tenebricosus*.

#### KEY TO THE NORTH AMERICAN SPECIES

(based in part upon information in the literature)

1. Antennae completely dark brown; midlateral prothoracic setae well developed ..... *tenebricosus*

Antennae with several segments yellow; midlateral prothoracic setae minute .....	2
2. Antennal segment I brown .....	<b>omani</b>
Antennal segment I yellow .....	3
3. Abdomen predominantly yellow .....	<b>4</b>
Abdomen predominantly brown .....	5
4. Postocular and major prothoracic setae blunt to dilated; abdominal sternite VIII in the male with glandular area stated to be unlike that in <i>arenicola</i> (Hood 1938) .....	<b>pallidus</b>
Postocular and major prothoracic setae pointed; abdominal sternite VIII in the male with a medially divided, transverse glandular area .....	<b>arenicola</b>
5. Antennae with intermediate segments yellow; abdominal tergite IX with major median posterior setae shorter than the tube; abdominal sternite VIII in the male without a glandular area .....	<b>dimidiatus</b>
Antennae with intermediate segments, except III, light brown; abdominal tergite IX with major median posterior setae longer than the tube; abdominal sternite VIII in the male with a transverse glandular band .....	<b>tantillus</b>

**Agrothrips arenicola** (Hood)

*Karyothrips arenicola* Hood (1938:216). ♀, ♂. Type locality.—Aguila, Arizona.

Diagnosis (summarized from original description): Known only by the brachypterous form. Color nearly uniformly ochraceous yellow with antennal segments IV to VIII uniformly light brown, antennal segments IV to VII scarcely pedicellate. Ocelli absent. Postocular setae pointed. All prothoracic setae pointed. Fore tarsi each presumably armed with a small tooth.

Only the 16 specimens from the type locality are recorded in the literature. These were taken from the grass *Hilaria rigida*.

I have not seen this species. It has never been illustrated.

**Agrothrips dimidiatus** (Hood)

*Watsoniella dimidiata* Hood (1939:576). ♀, ♂. Type locality.—Tivoli, Texas.

Diagnosis: Known only by the macropterous and brachypterous forms. Bicolored, with antennal segments I, and III to VI, legs, thorax, and abdominal segment I, yellow; the remainder of the abdomen dark brown, head and antennal segment II yellowish brown, and antennal segments VII and VIII brown. Wings when present colorless. Ocelli present. Postocular setae pointed to blunt. All well developed major prothoracic setae blunt to dilated. Fore tarsi each armed with a small tooth.

In the original description specimens were recorded from Tivoli, Bay City, and Palacios, Texas, collected mostly from grass. Before me are two brachypterous females from Lawrence, Kansas, taken in a prairie meadow. My previous apparent record of this species from Illinois (Stannard 1957) was the result of a typographical error.

**Agrothrips omani** (Crawford, J. C.)

*Haplothrips (Hadothrips) omani* Crawford, J. C. (1947:250). ♀. Type locality.—Tucson, Arizona.

Diagnosis: Known only by the apterous form which is not particularly degenerate. Color generally dark brown except for antennal segments III to VI, apical portions of tibiae and all tarsi which are predominantly yellow. Ocelli present. Postocular setae pointed to blunt. All well developed major prothoracic setae blunt to dilated. Abdominal sternite VIII in the male (newly discovered in Illinois) without a glandular area.

Originally described from Tucson, Arizona, on Johnson grass, this species is now known from Springfield, Colorado, on range grass (INHS collection) and from Sheldon, Illinois.

The Illinois specimens, which were erroneously cited as records of *dimidiatus* (Stannard 1957), have been compared with paratypes of *omani* and have been found to be conspecific. In view of the possibility that the Illinois population is an isolated colony confined to a heavily grazed pasture area that contains few native plants, and because this population is so far out of the expected range of species in the genus, it may be presumed that *omani* of Illinois has descended from introduced stock. Attempts to secure additional specimens of *omani* from other sections of Illinois and from Missouri, Kansas, Nebraska, and Iowa have failed.

**Agrothrips pallidus** (Hood)

*Zygothrips pallidus* Hood (1912:140). ♀, ♂. Type locality.—Brownsville, Texas.

Diagnosis (summarized from original description): Known only by the brachypterous form. Color almost entirely clear, bright lemon-yellow except for antennal segments VII and VIII which are shaded with brown and except for the apical three-fourths of tube which is abruptly nearly black. Ocelli present in the female, absent in the male. Postocular setae blunt. All well developed major prothoracic setae blunt to slightly dilated. Fore tarsi each armed with a small tooth.

Although not so stated in the original description, it could be concluded by the inference given in the diagnosis of *arenicola* (Hood 1938) that the male of *pallidus* bears a glandular area on abdominal sternite VIII. Most likely this species has the median setae on the posterior margin of abdominal tergite IX longer than the tube.

The recorded specimens were taken at Brownsville and Padre Island, Texas, in grass, in one case Bermuda grass.

Hood (1912) illustrated the head, prothorax, and antennae.

I have never seen this species.

**Agrothrips tantillus** new species

Female (apterous).—Length distended about 1.7 mm. Bicolored brown and yellow. Head, except sometimes posterior portion; antennal segments I and III, thorax, legs, and anterior portion of abdominal segment I, yellow. Remainder of abdomen and antennal segments IV to VIII, brown; tube and unguitracors of legs, dark brown; head in

posterior half and sides of antennal segment II sometimes lightly shaded with brown.

Head, fig. 1. Ocelli absent. Postocular setae dilated. Antennal segment VI with a distinct, narrowed pedicel. Maxillary bridge considerably forward of the posterior margin of the head.

Prothorax with those major setae which are well developed dilated; anteromarginal and midlateral setae minute. Pterothorax degenerate but with a well defined suture between the meso- and metanotum. Wings and wing pads lacking. Fore tarsi each apparently unarmed.

Pelta broad nearly forming an isosceles trapezoid. Wing-holding setae not differentiated. Abdominal tergite IX with major posterior setae longer than the tube, pointed. Tube much shorter than the head.

**Male** (apterous).—Length distended about 1.3 mm. General color and structure similar to female. Abdominal sternite VIII with a narrow, complete, transverse glandular band, fig. 3. Abdominal tergite IX with major lateral posterior setae reduced in size.

**Holotype**.—Female; Minneapolis, Kansas (Rock City State Park); June 24, 1957; Evers and Stannard; from clumps of *Andropogon*. **Allotype**.—Male; same data as for holotype. **Paratypes**.—1 ♂, same data as for holotype. 1 ♀, 12.4 mi. so. of Hates, New Mexico, along Rio Grande; November 27, 1949; C. C. Hoff; in rotten cottonwood stump. 7 ♀, 1 ♂; 5 mi. w. of Albuquerque, New Mexico; November 6, 1954; C. C. Hoff; from roots of grasses and semi-arid plants. Types deposited in the collection of the Illinois Natural History Survey.

This species is a member of Group 1. It can be differentiated at once from the other members of this group, *arenicola* and *pallidus*, by the dark colored abdomen. In the characteristics of the longitudinally elongated prothorax and the degeneration of the pterothorax, *tantillus* tends to resemble the type species, *priesneri*.

Some paratypes of *tantillus* from New Mexico have the head slightly shaded with brown whereas the specimens of the type series from Kansas have the head entirely yellow.

#### *Agrothrips tenebricosus* (Priesner)

*Haplothrips (Hadothrips) tenebricosus* Priesner (1925:318). ♀. Type locality.—Los Reyes, Distrito Federal, Mexico.

Diagnosis: Known only by the apterous form which is not particularly degenerate. General color almost entirely dark brown except the tip of the fore tibiae and all tarsi which are yellow or nearly yellow. Ocelli lacking. Postocular setae dilated. All well developed major prothoracic setae (including the midlateral setae), dilated. Fore tarsi unarmed. Male unknown.

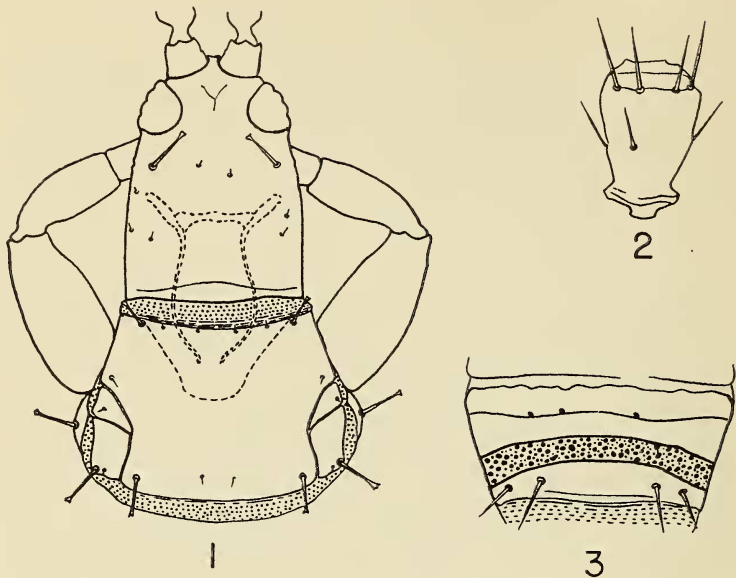
The types which were found near Mexico City in a short grass meadow are the only specimens so far collected. In 1955 I studied one of the two original females deposited in the Priesner collection. The head, prothorax, and antennal segment III have been illustrated (Stannard 1957).

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EXPLANATION OF FIGURES

*Agrothrips tantillus* new species. Fig. 1. Head, prothorax, and fore legs, dorsal aspect, leg setae omitted. Fig. 2. Antennal segment III of right antenna. Fig. 3. Abdominal sternite VIII of male showing glandular area.

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